





Space students

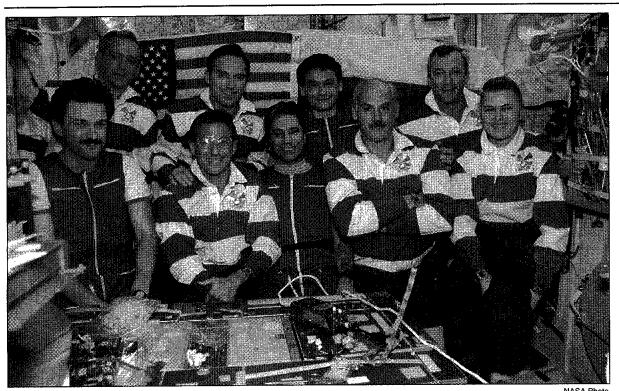
Welsh students spend summer at JSC learning space career options. Story on



Mars traveler

The tiny Mars traveler, Sojourner, is being prepared for launch. Photo on

Space News Roundup



STS-79 and Mir-22 astronauts and cosmonauts pose for final group portrait aboard Mir's core module before going their separate ways in Earth orbit. Front row, left to right, are Alexander Kaleri, Jay Apt, John Blaha, Bill Readdy and Shannon Lucid. On the back row are, left to right, Tom Akers, Carl Walz, Valery Korzun and Terry Wilcutt. Note that Blaha, the new American aboard Mir, is wearing the uniform of that crew and Lucid's garment is uniform with the STS-79 astronauts.

Shuttle study holds potential for Earth-bound problems

The experiment's name conjures up images of Hollywood and the stars, but it really seeks solutions to many down-to-Earth problems.

It's called MGM because it studies the Mechanics of Granular Materials—he interaction of large numbers of such objects, ranging in size from a grain of sand to a boulder.

For decades, researchers seeking to unravel the behavior of these materials have been hampered by Earth's gravity. However, astronauts aboard Atlantis during the past 10 days took advantage of the microgravity environment to study what However, once the package is happens to granular materials under low stress. Working with scientists at Marshall Space Flight Center. Atlantis' astronauts examined materials in simulated conditions that typically are present when granular systems deform or collapse.

One common example of MGM is a bag of vacuum-packed coffee. As air presses on the package from the outside, coffee grains are pushed together inside the package and lock each other in place. These collective forces create a brick-like object.

ripped open, releasing the pressures, the coffee's grain assembly becomes very weak and soft, moving about freely—much like a liquid.

Soil and other granular materials behave in much the same way, demonstrating a fundamental aspect of granular mechanics: a single shift in conditions can markedly change the properties of bulk material.

To understand how such granular materials behave under low stresses, Atlantis' crew and researchers Please see EXPERIMENTS, Page 4 **Lucid bids** Mir farewell; **Blaha stays** With Shannon Lucid safely aboard

ATLANTIS

the Space Shuttle Atlantis and fellow American John Blaha settling in on Mir, the crew of STS-79 broke formation with the Russian space station Monday and headed for home.

Lucid's six-month stay in orbit was scheduled to end Thursday at 188 days and establish her as the American duration record holder and the world's female record holder. "Dar Vidanya," or goodbye in

Russian, were Lucid's last words to her Mir 22 crewmates and Blaha.

"You look great, we'll see you later," Blaha radioed back from Mir.

Lucid was expected to feel weak, nauseous, tired and heavier than normal after returning to Earth's gravity, said Dr. Roger Billica, JSC's chief of medical operations.

Doctors planned a full battery of tests after landing and monitoring of her health for some time, Billica said, but that they aim to get her home with her family as soon as possible.

She said in on-orbit interviews that she is looking forward to cleaning up, sampling some "gooey treats" and sitting in her favorite chair and talking with her family.

"I haven't had a shower since March 22nd," she said "The guys say I don't smell too bad."

Landing was scheduled for 7:13 a.m. CDT Thursday at Kennedy Space Center, but because one of the shuttle's three auxiliary power units failed shortly after Atlantis reached orbit, mission managers were watching weather conditions closely and were ready to land at Edwards Air Force Base, Calif., if necessary. Landing weather rules were tightened because of the failure in a redundant system that provides hydraulic power to the aerosurfaces used to guide the space plane through the atmosphere.

Last week's rendezvous and docking went flawlessly, and within

hours of the hatch opening, Blaha and Lucid had formally swapped places aboard Mir. Blaha is scheduled to remain on Mir for four months, until Jerry Linenger arrives to replace him in January.

"What this mission is about is ends and beginnings, and conflicting emotions that affect all of us here," Commander Bill

Readdy said before undocking. "Beginnings' because it begins John's flight...and 'endings' because it ends Shannon's record-setting flight, six months on orbit.

"We'd obviously like to stay. Every time we go past a window and see the Mir, it's an awesome sight. Every time we float down one of the passageways into the hatch and see one of our Russian colleagues working together with a member of our crew, it's a joy to behold."

Readdy flew the orbiter manually through the final 2,000 feet and finished the docking at 10:13 p.m. Wednesday, within seconds of the

Piease see STS-79, Page 4

NASA, JSC adopt streamlined performance appraisal system

JSC is about to implement a new two-level performance appraisal system for civil servants that takes advantage of changes in federal law to focus on objectives and results rather than the review process.

The changes cleared the way for agencies to design their own performance management systems, and NASA has adopted the Employee Performance Communication SysNASA sought to link individual performance with organizational goals.

NASA's new system also focuses more on the entire system of performance management, performance planning, career development and employee recognition and less on rating labels and cumbersome documentation requirements.

"JSC has been involved in a number of efforts within the agency to and the nerforman

agement system," JSC Deputy Human Resources Director Greg Haves said. "We're happy to see that many of the ideas we brought forward are being adopted in this new plan."

The new system, recommended by an agencywide team, still relies on critical job elements to assess employee performance. But, paperwork is significantly reduced and supervisors assign only two rating

levels, "Meets or Exceeds Expectations" or "Unacceptable." Reviews emphasize effective two-way communication rather than procedures.

To further enhance the program, employees will be appraised on their "anniversary" dates — the date they began working at JSC. This change is intended to keep supervisors from having to complete all performance appraisals once a year and allow them to conduct individually tailored

performance assessments and developmental discussions.

"This has less overhead and it is more focused on objectives and results than it is on process. It eliminates a lot of the focus that has been placed on the 'adjective rating' (outstanding, highly successful, etc.) itself and will allow us to put more emphasis on the future development

of employees," Hayes explained. Please see PERFORMANCE, Page

Vehicle decal deadline approaching quickly

Employees who have not obtained a new vehicle decal will not be able to gain access to JSC after Monday's deadline without first making a stop at Bldg. 110.

Employees may request a maximum of three decals by presenting a completed JSC Form 1572, Vehicle Reg-Record, istration available at the badge offices in

Bldgs. 30, 110, the reception desk in Bldg. 1 and contractor security offices. A valid permanent badge and driver's license will be required to obtain new decals, along with the year, make, model, color, license plate number and state in which the

New decals are available at Bldg. 110 from 7:30 a.m.-5 p.m., Monday-Thursday and from 7:30 a.m.-noon on Friday. Temporary

decal passes are issued from 6:30 a.m.-11 p.m. daily at Bldg. 110. After hours, these employees may obtain temporary vehicle passes from the security officer at

yndon B. Johnson Snace Center

D01200

Beginning Oct. 1, current decals will be obsolete. Employees no longer will be able to show a badge or display an obsolete decal to gain entry into JSC. For more information call x32112.



STS-79 Mission Specialist Shannon Lucid checks wheat plants growing on the Russian Mir Space Station. Lucid returns to JSC today after spending more than 180 days in space aboard the Russian outpost.

Crew returns this afternoon at Hangar 276

The STS-79 crew is scheduled to return home today at Ellington Field, but employees planning to attend need to note that the ceremony will not be at the usual location.

Today's ceremonies will be at the NASA Aircraft Operations Hangar 276, at the south end of the Ellington runway, instead of Hangar 990.

STS-79 Commander Bill Readdy, Pilot Terry Wilcutt, Mission Specialists Jay Apt, Tom Akers, Carl Walz and Shannon Lucid will return to Houston early to mid-afternoon on Friday. Lucid will return with her crewmates, but her participation in the event will depend on her condition. The crew return activities will be carried live on NASA Television. For details, call x36765.

Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Store from 10 a.m.-2 p.m. Monday-Thursday and 9 a.m.-3 p.m. Friday. For more information, call x35350 or x30990.

Texas Renaissance Festival: Weekends beginning Oct. 5. Tickets cost \$11.50 for adults

EAA Belize Resort Trip: Available through Dec. 15. Cost is \$472 per person double occupancy. \$100 deposit required with final payment due 30 days before departure.

EAA Caribbean Getaway Cruise to Puerto Rico: Jan. 3-13, \$1198 double occupancy with airfare, \$999 cruise only. Final payment due Nov. 4.

Sam Houston Race Park Track Pack: \$10 value pack for \$5.25, includes Club Level seating, program, tip sheet, admission, preferred parking and gift shop discount.

Splashtown: One day pass cost \$14.25. Astroworld: One day pass cost \$22.75, two day pass cost \$34.25.

Fiesta Texas: One day pass cost \$22.75, two day pass cost \$34.25. Six Flags at Arlington: One day pass cost \$22.75, two day pass cost \$34.25.

Sea World: Adult tickets cost \$24.50, children (3-11) cost \$17.25.

Space Center Houston: Discount tickets, adult, \$8.75; children (4-11), \$6.25, annual membership, \$22.95, family membership, \$59.95.

Movie discounts: General Cinema, \$4.75; AMC Theater, \$4.50; Sony Loew's Theater, \$4.75.

Franklin Planner refills: now taking orders for 1997 calendars.

Sweetwater Pecans: \$5.65 per pound. Stamps: Book of 20, \$6.40.

Entertainment '97 books: Cost is \$25.

Metro tickets: Passes, books and single tickets available.

JSC

Filruth Center News

Sign up policy: All classes and athletic activities are first come, first served. Sign up in person at the Gilruth Center and show a NASA badge or yellow EAA dependent badge. Classes tend to fill up two weeks in advance. Payment must be made in full, in exact change or by check, at the time of registration. No registration will be taken by telephone. For more information, call x30304.

EAA badges: Dependents and spouses may apply for photo identification badges from 7:30 a.m.-9 p.m. Monday-Friday; and 8 a.m.-4 p.m. Saturdays. Cost is \$5. Dependents must be between 16 and 23 years old.

Nutrition intervention program: A six-week program to learn more about the role diet and nutrition plays in health, including lectures, private consultations with a dietitian and blood analysis. Program is open to all employees, contractors and spouses. For more information call Tammie Shaw at x32980.

Defensive driving: One-day course is offered once a month. Cost is \$25.

Stamp club: Meets at 7 p.m. every second and fourth Monday in Rm. 216. Weight safety: Required course for employees wishing to use the weight room is offered

from 8-9:30 p.m. Oct. 8. Pre-registration is required. Cost is \$5.

Exercise: Low-impact class meets from 5:15-6:15 p.m. Mondays and Wednesdays. Aikido: Martial arts class meets from 6:15-7:15 p.m. Tuesday and Wednesday. Cost is \$35 per month. New classes begin the first of each month.

Aerobics: Classes meet every Monday, Tuesday, Thursday and Friday.

Ballroom dancing: Cost is \$60 per couple. For additional information call the Gilruth

Country and Western dancing: Beginner class meets 7-8:30 p.m. Monday. Advance

class meets 8:30-10 p.m. Monday. Cost is \$20 per couple.

Fitness program: Health Related Fitness Program includes a medical examination screening and a 12-week individually prescribed exercise program. For more information call Larry Wier at x30301.

Dates & Data

Today

JSC

Cafeteria menu: Special: tuna noodle casserole. Total Health: broiled chicken breast. Entrees: deviled crabs, broiled pollock, liver and onions, broiled chicken with peach half, Reuben sandwich. Soup: seafood gumbo. Vegetables: Italian green beans, cauliflower au gratin, steamed rice, vegetable sticks.

Monday

CTAP workshop: The Career Transition Assistance Program will hold a "Starting a Business" and "Becoming a Consultant" seminar at 8:15 p.m. Sept. 30 in Bldg. 45 Rm. 304. For more information call Keisha Gilbert at x34300.

Cafeteria menu: Special: Italian cutlet. Total Health: herb flavored steamed pollock. Entrees: barbecue beef spare ribs, steamed pollock, baked chicken. French dip sandwich. Soup: black bean and rice. Vegetables: California mix, okra and tomatoes, vegetable sticks, ranch style beans.

Tuesday

ASQC meets: The Bay Area Section of the American Society for Quality Control will meet at 5 p.m. Oct. 1 at the Ramada King's Inn, 1301 NASA Road 1. Sudhir Bafna will discuss "Hypothesis Testing," and Bill Crittenden will discuss "Hazard Identification and Analysis Methods." Dinner costs \$9. For more information call Ray Swindle at 335-6948.

ABWA meets: The American Business Women's Association, Clear Lake Area Chapter will meet at 5:30 p.m. Oct. 1 at Bay Oaks Country Club. For more information call Kathleen Kaminski at x38706.

Cafeteria menu: Special: spaghetti with meatballs. Total Health: baked potato. Entrees: stir fry beef,

liver and onions, beef cannelloni, ham steak French dip sandwich. Soup: split pea. Vegetables: winter blend mix, seasoned cabbage, breaded squash, lima beans.

Wednesday

Toastmasters meet: The Spaceand Toastmasters will meet at 7 a.m. Oct. 2 at the House of Prayer Lutheran Church. For more information call Jeannette Kirinich x45752.

Astronomy seminar: The JSC Astronomy Seminar will meet at noon Oct. 2 in Bldg. 31, Rm. 129. An open discussion meeting is planned. For more information call Al Jackson at x35037.

Cafeteria menu: Special: smoked barbecue link. Total Health: roast porkloin. Entrees: cheese enchiladas, roast pork and dressing. baked chicken, steamed pollock, Reuben sandwich. Soup: seafood gumbo. Vegetables: Italian green beans, Spanish rice, turnip greens, peas and carrots.

Thursday

Quality forum: The American Society for Quality Control and Lockheed Martin will host the Quality Forum XII, "Quality 1-on-1: A New Game Plan," at 11 a.m. Oct. 3 at the Gilruth Center. Quality leaders from Hewlett Packard, 3M and NASA will discuss quality issues and advancement in the area of customer satisfaction. For more information call Ann Dorris at 282-3782.

Warning system test: The sitewide Employee Warning System will under go its monthly audio test at noon Oct. 3. For more information call Bob Gaffney at x34249.

Cafeteria menu: Special: chicken fried steak. Total Health: roast beef with gravy. Entrees: steamed pollock, lasagna with meat, steamed pollock, catfish, French dip sandwich.

Soup: cream of turkey. Vegetables: whole green beans, butter squash, cut corn, black-eyed peas.

Friday

Cafeteria menu: Special: fried chicken. Total Health: vegetable lasagna. Entrees: pollock hollandaise, beef stroganoff, vegetable lasagna. Vegetables: steamed broccoli, carrots vichy, Italian zucchini, breaded okra.

Oct. 5

Race for the cure: The Susan G. Komen Breast Cancer Foundation is holding the sixth annual "Race for the Cure" at 7 a.m. Oct. 5 at the Galleria. Registration for the 5K event is \$15 before Sept. 25, \$20 after that date and \$25 on race day. For more information call 850-9877.

Oct. 6

Walktoberfest: The American Diabetes Association is sponsoring its annual Walktoberfest on Oct. 6. This year's walk will be in tribute to the late Stephen Gauvan. For more information contact Jennifer Potter at 977-7706.

Oct. 7

ISO manager seminar: A management overview seminar will be offered to managers from 12:30-4:30 p.m. Oct. 7 in the Bldg. 30 auditorium to provide a better understanding of ISO 9000 quality standards and the implementation effort. For more information call Glen Van Zandt at x33069 or Brent Fontenot at x36456.

ISO employee seminars: Two awareness seminars will be offered to employees at 8:30-9:30 a.m. and 10-11 a.m. Oct. 7 in the Bldg. 2 auditorium to provide an abbreviated overview of the ISO 9000 process. For more information call Glen Van Zandt at x33069.

Swap Shop ads are accepted from current and retired NASA civil service employees and on-site contractor employees. Each ad must be submitted on a separate full-sized, revised JSC Form 1452. Deadline is 5 p.m. every Friday, two weeks before the desired date of publication. Ads may be run only once. Send ads to Roundup Swap Shop, Code AP2 or deliver them to the deposite box outside Rm. 181 in Bldg. 2. No phone or fax ads accepted.

Sale: Alvin, 10 aces, cleared, new barn, 5 acs fenced, CR 172, \$49.5k, x30737.

Sale: Boat slip on Clear Lake, w/roof & motorized boat hoist for pwr boats, great access to water, \$7.5k.

Lease: La Porte, 3-2 duplex, ~1500 sq ft, W/D conn, next to San Jac college, \$550 mo + \$550 dep.

Sale/Trade: heavy wooded lot, .5 acre at Sam Rayburn Lake; 2 camper lots at Lake Livingston. Dave Avoub, 280-2914. Sale/Lease: Brook Forest, 4-2-2, 2348 sq ft, new

carpet/tile, remodeled kitchen, middle atrium open to the outside, lease purchase, Brian, 480-4351. Sale: 1857 Galveston historic home, 3 BDR, 2500 sq ft, 12' ceilings, 3 FPL's, twice on Homes Tour, \$145k. 409-762-4171.

Sale: Dickinson Bayou, 1 ac, 4-4-4, wooded, fenced, boat house, \$195k. 768-1080 or 337-2784. Sale: Canyon Lake, 3-2, lake view, 1200 sq ft deck storage under house, 12' x 12' gazebo, waterfall,

satellite, \$124k owner. 210-899-3447 or 520-1777. '82 Champion 14 x 45 trailer, ex cond. deck/shi in park, South LaPorte, \$9k. 283-4165 or 470-6093. '93 Prowler 5th wheel trailer, 27-5N, fully loaded.

ex cond, w/Reese hitch, \$11.3k obo. 470-8306. Rent: Beach house, Crystal Beach, TX, Galveston county, sleeps 10, fully furnished, cable TV, wkly/wkend. 486-1888,

Rent: Arkansas cottage overlooking Blue Mt Lake & Mount Magazine, furn, massive FPL, antiques, \$50/dly & \$250/wkly. Corcoran, x47806 or 334-7531. Rent: Beach house, West Galveston, Jamaica

Beach, 2nd row beach, winter rates, 488-6796. Rent: South Lake Tahoe cabin, sleeps 8, cable TV, 3-2, modern kitchen, W/D, \$85/ntly/wkly/holiday rates. x41065 or 326-2866.

Cars & Trucks

'89 Pontiac Sunbird, 4 dr. auto, A/C, ex cond, new tires, \$2,595 obo. Ayub Khan, x39199 or 910-6700. '93 Chevy Sierra C-1500, ext cab, long bed w/liner,

350 V8. P/S. P/B. A/C. Les, x30090 or 331-5951. '96 Saturn SL-2, leather, sunroof, loaded, 10k mi,

ex cond, \$16.8k. 768-1080 or 337-2784. '90 Grand Voyager LE, 3.3L dual A/C, privacy windows, 104k mi, ex cond, \$5.4k. Charlie, 282-6677. '86 VW Quantum, 5 cyl, auto, P/W, P/L, A/C, 4 dr,

cruise, new tires, silver, sunroof, \$3k. Mike, 280-2565 '89 Chevy Beretta GT, CLN, 1 owner, red, 2 dr, new battery/brake/belt/muffler, 144k mi, \$3.9k. Angie,

'96 Plymouth Breeze, loaded, gold, 5k mi, \$14k obo. Mike or Judy, 332-9392.

'85 Olds Cuttass Supreme, 90k mi, 1 owner, new tires, A/C, \$600 obo. Steve, 280-1219 or 334-1618. '92 Red Honda Civic SI, sunroof, 5 spd, 1.6L fuel inj, 2 dr hatch, stereo cass, \$7.5k. 486-8487.

'90 Chevy S10 pickup, 4 cyl, 134k mi, good cond, \$2.7k obo. Campbell. x8948.

'93 Pontiac Sunbird, 4 dr, ex cond, low mi, auto, 2 new tires, new battery, tune-up, A/C. 488-4710. '90 Ford Bronco II XLT, auto, new tires, \$5.5k.

'63 Ford pickup, classic, new some restoring, \$500.992-3187.

Steve, x45431 or 482-1831

'92 Ford Tempo, gray/red int, power, auto, A/C, clean, 71k mi, \$5.2k. Jack, 579-6510. '93 Cavalier convertible, V6, low miles, \$11k. 992-

5859 '57 Chevy Bel Air, 4 dr sedan, excellent for restora-

tion or drive as is, \$4.2k. x30432 or 481-0046. '88 Pontiac Gran Prix, V6, runs good, new transmission, \$2.5k. 992-5859.

'54 Street rod Chevy pickup on '79 chassis w/454-Cam, Headman headers, STRIP dominator, custom int, American racing rims, \$4.5k. 409-938-7328.

'50 Chevrolet 3/4 ton truck, \$2.2k. 286-5971. '77 Tioga class C RV, 24', new tires/brakes/carpet and drapes, extensive tune-up, \$5.5k. Karen, x38784 or 291-9100.

Boats & Planes

Jon boat, 10' aluminum, v-nose w/5.5 Hp, \$150. 409-938-7328.

'85 Sea Ray Bowrider, 21', 260 Hp Merc V8, Alpha 1 O/D, loaded, ex cond, tandem galv trailer, \$7,995. Keith, x35191 or 996-8318.

'73 Bayliner, 24', Flybridge, trailer, \$8.5k. 283-4165 or 470-6093.

'88 Centurion road bike w/cracked down tube, sell as is, \$75 obo. 333-6646 or 486-1834.

'96 Suzuki Intruder 800. Jardine pipes. Corbin gunfighter saddle, eng guards w/highway pegs, sissy bar rack, extra chrome, 6k mi, ex shape, \$5.9k x39022 or 334-1595.

Children's 20' bike, 6 spd indexed gear shifting & hand brakes, great cond, \$75. Duane, x38308 or 334-

Audio Visual & Computers

Super Nintendo w/2 controllers, 5 games, access included, warranties, \$200. Tony, 488-7743. Computer and HP Deskjet printer, 486/50 8Mb

memory 240Mb HD, internal modem 28.8/fax, 15' monitor, 2X CD Rom drive, Sound Blaster sound card, assort S/W & manuals. Doug, 308-5158.

PV PA speakers, Bass bottoms, model FH-115. folded horn design, \$300 pr. Steve, x34083 or 996-8849

4 Mb RAM, 72 pin w/parity, 1x36, \$35. x41065 or 326-2866.

Argus 541 automatic slide projector, needs replacement lamp, remote control slide changer, 4" f/3.5 lens, old model, make offer. Fred, x34678. Fujitsu DL 3400, 24 dot matrix printer, \$250 obo.

Trang, x38017 or 484-6204. Portable Oscilloscope DC/AC w/manual, triggered, ex cond, \$175 obo. Tom. 996-5835.

Bel Quantum 2 SE 3 band radar detector and Audiovox car phone, model SP85 mounts in car, \$25 ea. 332-2039.

386 PC, 5.25/3.5 FDs, 4Mb RAM, 70Mb HD w/superstore doubter, SVGA mon, Epson KPX 1124 printer, kybd/mouse, Windows 3.1. MS Office S/W. 2500 modem, \$400; Wing Commander - Tie Fighter,

ex cond. \$20. x48050 or 482-7616.

Daisy wheel printer, ex cond, \$68. Dianne, 488-4481 Commodore computer, 2 kybds, 2 disk drives.

games, Joy sticks, access and books, \$50, 332-3168. Macintosh Centris 650, 24Mb RAM, PC compatibility card w/16Mb RAM, kybd, mouse, Sys 7.5.3, \$1k. Joe, 996-1667.

Mac Power PC's, several models, very cheap prices: US Robotics 28.8k ext fax/modem for PC/Windows computer, \$99; HP Scanjet 4S for Macintosh, \$150; Traceball for Mac, \$30; Glidpoint for Mac, \$60; Imagewrite II printer for Mac, \$45. Bobby, 244-2444 or 488-4382.

Circa 1938 Philco floor model radio, wood cabinet w/wood inlay, short-wave band, works if you can find burned out tube, \$250. Mike, 280-2565 or 486-8518.

8086 PC w/2 disk drives, 1 HD, Panasonic printer; \$100; contemporary computer desk and hutch, ex cond, \$375. 244-8464 or 286-9632. Pentiums 100/133/166 MHz, Intel, 16Mb RAM

1.2 Gb HD, 8X CD multimedia, 28.8 fax modem, 14 28 SVGA mon, FD, kybd, spkrs, mouse, \$1095/1289/ 1385; memory 8Mb, \$49; 16 Meg, \$89; mother-boards, Pentium 100/133, \$239/\$339. Ayub, x39199 or 910-6700.

Stereo in class case, tape deck/phono, Sansu speakers, ex cond, \$350. Chuck, 488-4481. Intercom sys, ex cond, new \$450 sell \$150; Base station & 3 satellites. Lorraine, 480-0014 x33.

Musical Instruments

Piano, Yung Chang upright, good cond, new \$2.5k sell \$600. x36667.

Pets & Livestock

unknown, J.L. Hill, x34501.

Free spayed dwarf rabbit, black/white w/cage Annie, x32251 or 471-8342.

Siberian Husky puppy, AKC reg, black and white male, 4 mos, shots/wormed, champion sire, \$300. Lisa, x40213 or 992-7302. Free pupples, reg black female lab and sire

Household

Kenmore W/D, apart sized, portable, white, \$75 ea or \$100 both. Jeff, x41947 or 286-6785. Sony 27° TV, \$200 firm, x36442.

Kenmore W/D stacked, white, \$300 obo. 470-0166. Waterbed, dbl sz w/mirror bookcase headboard, 6 under drawers, padded rail all around, mattress w/heater, \$125. 897-8171.

Round oak table dining room table, w/6 chairs; dishwasher, 486-1888. Dresser w/mirror, \$50; swivel rocking chair, \$50. Lisa, x40213 or 992-7302.

\$350; chest of drawers, \$95; dress, \$95; night stand, \$25. Bob, 244-4431. Dark pine family room furniture, couch, 2 chairs coffee table/ottoman, 2 end tables, \$200. Joe, 996-

King sz waterbed w/2 shelf headboard and mirror.

Glass top dining table w/4 chairs, 48" round, \$175. Dusty rose sofa, long, loveseat, ex cond, \$495; small buffet, matching china cabinet, Scandinavian,

\$475; W/D, \$275. Joan, x34681 or 286-5816. Sylvania 25" console TV, \$120; complete twin bed, 4 drawer chest, \$100. Nasser, x33685 or 286-0133.

Twin bed, frame/box springs, ex cond, \$50. 486-

Whirlpool refrigerator/freezer, 20 cu ft, white w/ice maker, glass shelves, \$800. John, x45684 or 527-4195. Contemporary entertainment center, whitewash

finish, 2'Dx4'Hx6'W, accommodates, 30' TV, drawers/trays smoked glass doors, ex cond, \$180 obo. Gus, x33425 or 286-3402.

Acopoli table 39" round w/4 chairs, still wrapped, \$425. Cindy, x31769 or 332-1054.

Couch, loveseat, end tables, coffee table, beige, good cond, cushions cleaned, make offer. Sandra, Whirlpool W/D, heavy duty washer, almond, \$125

obo, x38173. Child's Danish platform bed w/draw-under mattress, bookcase across head w/3 drawer night stand, mattress included, \$75, x47615.

Queen mattress and box springs, very clean w/frame, \$100. 532-1673. Antique blond ornate mirror, 24"x34" w/shelves, \$100.480-3424.

Wanted

Want personnel to join VPSI vanpool departing MeyerLand Park and Ride lot at 7:05 a. m. for JSC. Vanpool consist of on-site personnel working the 8 a.m./4:30 p.m. shift. Don Pipkins, x35346.

Want non-smoking housemate to share 3-2, Sagemont, no pets or children, \$385 mo + 1/2 utili not incl phone, \$400 dep. Diane, 244-7129. Want male, professional, non-smoking to share 3-

2-2 house, Clear Lake, \$400 mo incl's all utili. 474-6359 or 480-1670. Want roommate, ig 4-2-2, Seabrook, separate loft/living area, phone, cable/fax, W/D, \$375, 474-

Want non-smoking roommates to share 3-2-2, Webster, \$340 incl's all utili except phone, prefer stu-

dents. 332-8417. Want professional non-smoking male to share 2-2 townhome, Pearland, \$350, 1/2 utili. John, 997-8796. Want individuals traveling to Ireland, I will pay for any telephone books collected in Ireland; also want

employees interest in forming Gaelic Club, E-mail hream@Gp906.jsc.nasa.gov. Want Champion juicer. 474-4922.

Want upright freezer. 484-0284.

Want baby crib and dual baby stroller, prefer European brands. Tess, 488-0949. Want double baby jogger. Pete, x40016. Want low priced school/work car or truck, prefer

Japanese. 272-7011. Want space memorabilia for private collection, flown items, eg. utensils/clothing; autographs on photos, covers, letters - relating to Mercury, Gemini, Apollo, Skylab, Shuttle. Richard or Nancy, 481-8080.

Miscellaneous

R/C plane, Phoenix 8 high performace, retracts, Rossi 60, 6 channel Futaba FM, \$500. 474-5107. Red fiberglass flat truckbed cover w/locks, fits '85-

'95, Toyota pickup, \$175. 480-3424 Exercise bike, Vitamaster w/40 lb flywheel, \$30 obo, Tess, 488-0949

Black rocker chair, \$25; rider exercise machine, \$75; single day bed, no mattress, \$25. 488-0664.

Twelve & 20 gauge wads, 1 carton clay pigeons, 38, 30.06, 308, 247 brass, 38 wadcutter reload kits, +

misc, \$35. John, 333-4374.

T/C single shot pistol, 223 cal, 14" barrel, Redfield 2X - 6X LER scope, ammo, \$525. Charles, x37678 or 661-4789

Water lilies, \$5 - \$25; iris, pickerel rush, umbrella plam, \$1 - \$2. x48745 or 337-5392. Illisa designer wedding dress by Demetrois, sz 8,

long sleeve, champagne, \$500 obo. x35384. Lucasse lizard boots, Tony Lama gator boots, sz 8B, \$120 pr. x38835 or 482-5531.

Nordictrack and mat, \$275 obo; Easy rider exerciser, \$100 obo. 470-0166. Parting out '86 Pontiac Fiero, all except drive train

and electrical wiring, make offer; ladies wedding ring set, \$375 obo. Keith, x35191 or 996-8318. Miscellaneous building materials, hardwood front entry door, \$35; wood rear entry door w/6 panes of glass, \$25; free 4' x 8' wood trellis. Jeff, x31177 or

US mint commemorative stamps .6 to 15 cent

sheets, \$48. Jeff, 482-5393. Dooney and Bourke purse, 10" x 7.5", blue w/brown trim, 2 outside pockets and place for checkbook, great shape, \$75. 602-4005. Sears 12" radial arm saw, extra blades, \$100; K-

Mart, McCullock gas-powered weed eater, \$45. Marlin 30-30 mod 336 3x9 Redfield Tracker scope w/case, \$250; Black Max 3.5 Hp 125V air compressor

20' hose, \$225, 488-3411. Vacuum, \$25; king sz waterbed, \$100; white crib w/mattress, \$75; coffee table, \$50; blue loveseat, \$10; helf center w/3 bottom doors, \$25; steam vanorize \$15; deep fryer, \$10; fondue pot, \$15; toaster, \$15; work table, \$10, x39450.

Body Tech home gym, ex cond, 4 station, dual stack, \$599; Cardioglide, ex cond, \$99. 482-9576. Golf cart w/battery charger \$500, 331-3334

Wedding dress, sz 10, \$200; knife block set, \$5; tree stands, \$5 ea; artificial Christmas, tree \$25; rijisk Country and Cow decor, ceramic coyotes, \$10, x39450.

Boat, 21' on trailer, \$800; doll collection, best offer; golf clubs, \$250; wedding dress and access, \$500, 922-7507. Fisher Price nursery monitor, \$20; Fisher Price

40lbs, \$15; boys name brand clothes winter/summer sz 2T - 6yrs. x37130. Christmas tree, 6', very good cond, \$50; Soloflex wt machine w/exercise wt straps, leg press, bench press, etc., good cond, \$250; 2 drawer file cabinet,

night time bottle warmer, \$16; child's bike seat up to

good cond, \$8. Jim, x30411 or 480-2646. "Body by Jake" hip and thigh machine, ex cond

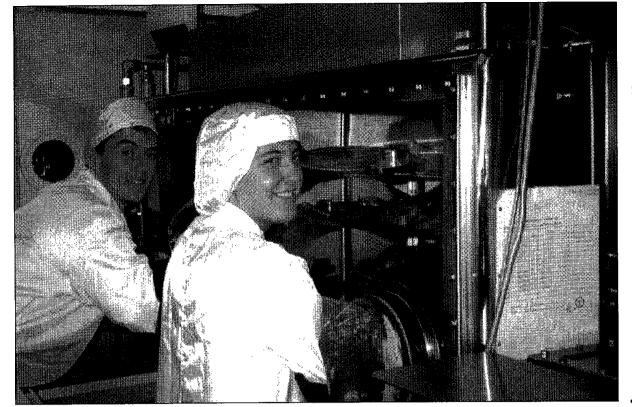
w/booklet, new \$150 sell \$69. Shelia, 486-7412. Cardio-Rider, \$200; Dp Body Toner 300 rowing machine, \$30; full body massage pad, \$150. 332-

Wedding gown, Lee Mori, sz 9/10, pearls and lace, off-the-shoulder, detach long sleeves, new \$1.5k sell \$550 obo. 992-3094.

R/C plane, Royal Air 40T w/Futaba 4 channel control, ready to fly, incl extras, \$375. Tony, 488-7743. Wood bedroom set, bunk beds, 2 drawers, desk

and chair, \$450; 4 dwr metal filing cabinet, \$25; full box spring, \$10; Kawai K-4 synthesizer, ex cond,

\$500. x48050 or 482-7616. Complete woodworking shop, \$10k firm. x36442. September 27, 1996 Space News Roundup Page 3



Space Students

High school students from Wales visit JSC, learn space science

By Natasha Calder

mployees around JSC opened their doors this summer to Welsh students as part of the International Space School Foundation's space scholarship program, and provided an insight into space to future scientists.

The ISSF program is a cooperative project intended to share the tangible scientific benefits of NASA's space programs with the international high

school community in an attempt to get students excited about the benefits of space travel and related educational spin-offs. The program has attracted attention from local space related institutions and organizations, as well as the JSC community.

The enthusiastic endorsement of the program gave Mary Fairclough and Gordon

Smith, seniors at Stanwell high school in Penarth, South Wales, the opportunity to observe the day-to-day operations of JSC, its contractors and Space Center Houston for a week in August. Both said the experience was enjoyable as well as inspiring.

ence was enjoyable as well as inspiring.

"I feel incredibly fortunate to have had the opportunity to visit the Clear Lake area and its space community,"
Fairclough said. "The visits to the Johnson Space Center and the various contractors allowed me to see first hand the workings of such an effective and sophisticated organization such as NASA. During my three weeks in Houston, I have learned a tremendous amount which will be of great value to me, both immediately in my current studies, and also, perhaps more importantly, of use to me in higher education and future employment."

"I am extremely pleased to have taken part in what I feel to be the most exciting and stimulating three weeks of my life," Smith said. "I am grateful to the program for inspiring me to continue my studies with even greater enthusiasm."

Fairclough and Smith had the added pleasure of being present at JSC at a time when the announcement of possible life on Mars was released. The students sat in on the press conference Aug. 7, and were given the opportunity to visit the lunar sample labs and examine various moon rocks and Martian meteorites.

"It was tremendous for me to have witnessed after so long, science fiction becoming science fact," Smith said. "We

were able to be at the press conference, where we learned close hand how much new information a fist-sized rock could yield to our understanding of Mars."

Another highlight for the foreign visitors was a presentation by Astronaut John Young on his experiences and hopes for the future of space travel. "Young seemed to personify the

general excitement all NASA workers feel for the current work they are doing, and the plans they have for the future," Fairclough said.

The students were able to experience other areas of NASA with the help of other students working on site as cooperative education students. By shadowing various co-op students throughout the week, Fairclough and Smith were given some indepth tours into various areas of interest around the center, like the Biology Laboratories, the Crew and Thermal Systems Division and the Regenerative Life Support Area.

"The combination of these experiences has helped me put together in my mind the values of my schoolwork and how it has a relevance and application in the real world." Smith said.

"Of the most practical use to me in my current studies was the visit to the Biochemistry department," Fairclough said. "I was fascinated by the hands-on research being carried out both there and in many other departments at NASA as

Other areas that opened doors to the students were the Plasma Rocket Propulsion Laboratory, Robotics Laboratory, Manufacturing Workshops, Life Support System Laboratory, the new Weightless Environment Training Facility, Ellington Field and Mission Control, among others.

"I was particularly impressed by the attitude of the employees that I saw at

NASA, both the workers and the co-op students," Fairclough said. "The sense of teamwork was particularly strong. Everyone who I met showed a real delight in their work and a pride that every task is part of the whole that makes the

space program work. The working atmosphere was one that I had never experienced before — friendly and welcoming, yet extremely efficient and conducive to working."

Fairclough and Smith also found time to enjoy some of the local culture around the JSC area, learning how to row in Clear Lake, and compare the latest in music, movies and sports during a co-op lunch off site. The two also had the opportunity to work as camp councilors at Space Center Houston and visit the Natural History Museum, among other activities.

The ISSF which made Fairclough's and Smith's experiences possible is the brain child of local business owners Geoff and Annette Mules, who also originate from Penarth. The Mule's non-profit foundation, now in its third year, aims to provide pre-collegiate students, selected by open competition, with an understanding of the space industry through work shadow, class room sessions and site visits. The program also promotes an appreciation for the international collaboration neces-

sary for penetrating the expansive opportunities of space exploration and research. To this end, the Mules intend to expand the program next year to accommodate 32 young adults from 16 countries for three weeks each summer.

The Mules hope to expand the program to include local universities and additional institutional resources. Currently, the three week program is broken down into a week spent in core lectures with industry field trips, a second week spent in specialized lectures and a hands-on

design/research project, and a third week spent with the students taking a turn at teaching elementary school children about space at Space Center Houston.

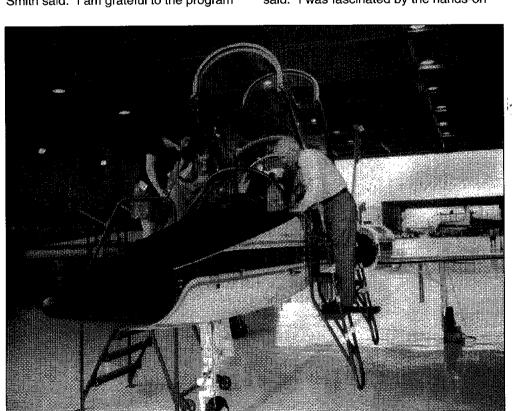
As for Fairclough and Smith, they have returned to South Wales after

their three weeks in the program with a fresh and well informed perspective on the nature and importance of NASA, together with a new sense of purpose in their own lives. The students will never forget their experiences at JSC, and it could well inspire them both to work for a career in space research and space technology.

"I am aware how few students of my age have the opportunity to observe so many different components of the space program in action," Fairclough said. "My experiences have really opened my eyes to the exciting and vital practical applications of science and technology."

"These three weeks have given me not only a greater understanding into the working's of NASA's scientists, but also the most memorable and exciting time of my life," Smith said. "I know how fortunate I am to have been part of this program, and only hope that future students will enjoy the experience as much as I have."

For more information on the ISSF program, call Geoff Mules at 472-7114.





From top to bottom, left to right: 1) From left, Welsh students Gordon Smith and Mary Fairclough check out lunar samples. The students spent two weeks at JSC learning career options of the space industry. 2) Fairclough examines the Mars meteorite. The students were able to take part in the announcement of possible life on Mars by attending press briefings in Bldg. 2. 3) Tours include a hands-on tour of Ellington Field. From left Fairclough and sponsor Anya Richards examine a T-38 while Doug Bradt of Dynacorp explains the cockpit layout. 4) From left, sponsor Geoff Mules, Fairclough, Bradt, sponsor Annette Mules, Richards and Smith take time out during the Ellington Field tour.

SCH wages war against waste with new exhibit

Space Center Houston will open a new exhibit Saturday designed to teach kids and their parents how to make Earth a greener, cleaner, safer place to live.

EarthQuest will take visitors on an interactive adventure through today's environment from inside a giant video game. Children who visit the exhibit will walk through a 10foot television screen, step into video games and use lasers to fight a battle against the red-eyed, evil waste monster Toxicus, a villain composed entirely of garbage.

EarthQuest presents children and adults with many ideas for making everyday environmentally friendly choices in an effort to protect our most precious resource - planet

Earth. The exhibit teaches children to begin making conscious choices to protect not only the environment today, but their future on Earth as well.

EarthQuest visitors are immediately met by J.D., a friendly robotic junkyard dog who enlists their help to defeat Toxicus. To win the game, visitors must travel through each of EarthQuest's five zones: neighborhood, home, shopping, transportation and recycling. Each zone is a realistic simulation containing actual environmental problems and suggestions on how the problems can be solved.

The Neighborhood Zone depicts a residential street on trash pick-up day, with

examples of how much garbage an individual produces in an average day or week, and a scavenger hunt locates recyclable "treasures" which can be recycled.

The Home Zone demonstrates how a household can run more efficiently and with less waste of Earth's natural resources by showing how certain products use more energy than others, while the Shopping Zone teaches visitors which products are Earth-friendly in terms of packaging, content and recycling. In the Transportation Zone, interactive video selections teach guests about alternative fuels that can be used to save the Earth's resources and create less pollution.

The Recycle Zone features a hands-on recycling activity that teaches kids how to sort glass, plastic, aluminum and paper. A video teaches the principles of how these used materials are turned into recycled products. Visitors finish their EarthQuest experience in the End Zone, where they are faced with the challenge of destroying Toxicus, by challenging visitors to identify and zap landfill items that could have been reused, reduced or recycled.

EarthQuest will be showcased at SCH through January 1997, and admission into the exhibit is free with the cost of admission. For more information call Space Center Houston at 244-2100.

JSC awards translation contract

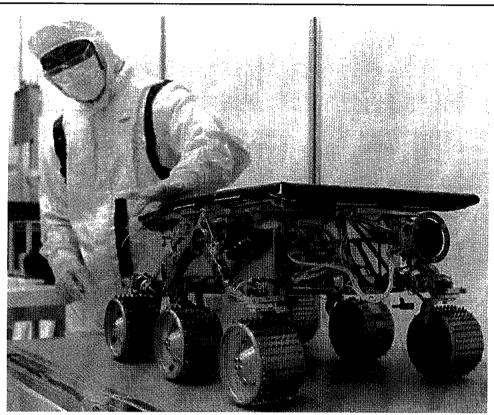
JSC has selected TechTrans International, Inc., for a six-year, \$39 million contract to provide Russian language and logistics services.

TTI will provide Russian language interpretation, translation, language training and logistics services to JSC. The cost and fee awarded in the six-year contract is divided into a three-year base period and three one-year option periods. NASA and the Russian Space Agency are currently cooperating in an international program leading to the development of the International Space Station.

Halloween dance tickets on sale

The Employee Activites Association will host a Halloween dance Oct. 26 at the Gilruth Center.

The Southern Cross Band will perform and costumes are encourage. Tickets are on sale through Oct. 23 at the Exchange Store at a cost of \$15, which includes dinner. For more information contact Mavis Ilkenhans at 244-9644.



MARS TRAVELER—Sojourner, the small 25-pound, six-wheeled robotic explorer is now being readied for launch at Kennedy Space Center's spacecraft assembly and encapsulation facility. The Mars Pathfinder is expected to launch Dec. 2. The 11-inch rover will be deployed to roam across an ancient Martian flood plain after the Mars Pathfinder lander touches down on the planet's surface July 4, 1997.

NASA instrument snaps global ozone image

Daily global mapping of the Earth's ozone layer from space has resumed with the acquisition of the first image from the U.S. Total Ozone Mapping Spectrometer instrument aboard the Japanese Advanced Earth Observing Satellite earlier this month.

"We are extremely pleased with the quality of this first image" said P. K. Bhartia, TOMS project scientist at Goddard Space Flight Center. "We're looking forward to continuing our monitoring of the global ozone situation and especially the upcoming season in the Antarctic.'

ADEOS continues the series of TOMS total ozone and volcanic sulfur dioxide observations that began with the Nimbus-7 satellite in 1978 and continued through the operation of a TOMS on a Russian Meteor-3 satellite, until that instrument ceased functioning in December 1994.

Data from another TOMS flying on the launched NASA TOMS-Earth Probe complements the global ADEOS data by providing imagery of atmospheric features related to urban pollution, biomass burning, forest fires, desert dust and small volcanic eruptions, in addition to ozone measurements.

The principal mission of TOMS/ADEOS is to monitor global ozone trends during the period when CFC-related depletion is predicted to be near its maximum.

"Stratospheric concentrations of chlorine from CFC's are expected to peak near the end of the century and then decline as a result of the Montreal Protocol," said Arlin Krueger, principal investigator for TOMS/ ADEOS. "TOMS/ADEOS will help us track this prediction. It also will continue to measure the concentrations of sulfur dioxide in the atmosphere in the wake of volcanic eruptions, thus extending the existing database of more than 100 eruptions."

TOMS complements Japanese instruments on ADEOS. The Improved Limb Atmospheric Sounder measures the vertical profiles of ozone and other gases in polar regions, while the Interferometric Monitor for Greenhouse Gases measures ozone beneath the orbital track, and the Retroreflector In Space determines trace gas profiles as it passes over laser stations.

Seminars offer look at ISO 9000 standards, plan

A series of four one-hour ISO 9000 awareness seminars are being offered to help acquaint NASA and contractor employees with the quality standards and the ISO implementation effort at JSC.

All NASA and contractor employees are welcome to attend one of the Teague Auditorium sessions, which will be from 8:30 -9:30 a.m. and 10-11 a.m. Oct. 7 and from 8:30-9:30 a.m. and 10-11 a.m. Oct. 9.

These short seminars will help build awareness about what ISO is and the center's implementation plan," said Glen Van Zandt of the Human Resource Development Branch. "In the weeks following, we'll be providing further training in areas such as auditing and documentation for those that need it."

The training courses follow on the heels of the establishment of the ISO 9000 Project Office. This officeheaded by Director Charlie Harlan-brings a top-level focus to the center's effort to become certified to the ISO 9000 family of standards. The new office will be responsible for managing JSC's transition from the current NASA Quality Management System to the internationally recognized ISO 9000 standards, with third party certification expected in about one year.

There is no need to "sign-up" to attend a session. For more information about the seminars, call Glen Van

Retirement program deadline approaches

The Careers Plus+ Retirement Program, designed to give retirement eligible employees more options to consider when making retirement decisions, is scheduled to end on Thursday.

Employees who wish to take advantage of one of the Careers Plus+ options must make all preparations to retire by Thursday. However, to accommodate as many retirement eligible workers as possible, employees who have signed work/service agreements in place before Thursday may establish actual retirement dates as late as Jan. 3.

The program, which has been in place since last February, has received positive feedback from those eligible to retire and, to date, 27 employees have retired under one of the Careers Plus+ options. For more information contact a Human Resource representative at x36251 or Employee Services at x32681.

Performance review to take place on anniversary dates (Continued from Page 1) on their anniversary dates in 1997. make sure it is successful." are only one aspect of this," Hayes In addition, employee briefings will be provided by the continued from Page 1). The largest attill will be provided by the continued from Page 1) on their anniversary dates in 1997. The largest attill will be provided by the continued from Page 1) on their anniversary dates in 1997. The largest attill will be provided by the continued from Page 1) on their anniversary dates in 1997. The largest attill will be provided by the continued from Page 1) on their anniversary dates in 1997. The largest attill will be provided by the continued from Page 1) on their anniversary dates in 1997. The largest attill will be provided by the continued from Page 1) on their anniversary dates in 1997. The largest attill will be provided by the continued from Page 1) on their anniversary dates in 1997. The largest attill will be provided by the continued from Page 1) on the page 1) o

pians. Since employees must be under performance plans for 90 days before they may be appraised and supervisors have just completed appraisals for all employees, there will be no appraisals for the remainder of this year. Employees with anniversary dates that fall between Aug. 1 and Dec. 31 will be appraised

Supervisors immediately will Starting Jan. 1, employees may be sary dates once they have been under the new performance plan.

"We've been given the option of how we phase this in, and we want to get on with the implementation," Hayes said. "We have been successful in working out details with the union, and we are going to work together over the next few months to

begin establishing new performance appraised according to their anniver- ten narrative summary every year, a broader look at performance man- from 1-3 p.m. Wednesday, 9-11 and will sign the performance planning and appraisal form with their supervisors, documenting the planning discussion (at the beginning of the rating period), the progress review (in the middle of the rating period) and the final rating (at the end of the rating period).

"Performance appraisal changes

agement. We intend to come up with some new features in career development and rewards and recognition over the next several months."

To help employees learn more about the new system, representatives from the Human Resources Office will conduct organizational briefings over the next few weeks.

Employees still will receive a writ- added. "What we intend to do is take be held in the Bldg. 30 Auditorium a.m. Friday, and 9-11 a.m. Oct. 17.

> Anyone who has questions about the new system should contact their Human Resources Representative at x36251, or call the Human Resources Hotline at x30616. Answers to commonly asked questions are available via the Internet at http:// hro.jsc.nasa.gov/hr

Experiments may improve **Earth soil sites**

(Continued from Page 1)

back on Earth studied three dry soil specimens under different pressures. The insights offered may be far-reaching. The results of the set of experiments aboard Atlantis and later missions could lead to improved selection and preparation of building sites, better management of undeveloped lands, and improve handling of materials in chemical, agricultural and other industries.

Space News Roundup

The Roundup is an official publication of the National Aeronautics and Space Administration, Lyndon B. Johnson Space Center, Houston, Texas, and is published every Friday by the Public Affairs Office for all space center employees.

The Roundup office is located in Bldg. 2, Rm. 181. The mail code is

Editor . Kelly Humphries Managing EditorKaren Schmidt Associate Editor.....Natasha Calder

STS-79 experiments to help scientists on Earth (Continued from Page 1)

pre-planned time. Soon after the crew members completed their welcoming ceremony, they went to work, hauling bags of water and other supplies from the shuttle's Spacehab module into the Mir. More than 4,000 pounds of equipment and supplies were transferred to Mir, and another 2,000 pounds of experiment samples were being returned to Earth. Among the equipment transferred were three experiments. the Biotechnology System, the Material in Devices as Superconductors and the Commercial Generic Bioprocessing Apparatus.

Readdy and Pilot Terry Wilcutt released hooks and latches holding Atlantis to Mir at 8:33 p.m. CDT Monday, ending the five days of docked operations. After performing a fiv-around of the Russian outpost at a distance of about 400 feet, they fired the shuttle's maneuvering jets to separate the two vehicles until Atlantis' return in January. Readdy told flight controllers that it was "kind of sad" to be leaving Mir behind.

Throughout the flight, Mission Specialists Jay Apt, Tom Akers and Carl Walz worked with a number of experiments in the first double Spacehab module. Among them

were the Active Rack Isolation System, a prototype of a system designed to dampen the effects of crew movements and thruster firings on sensitive experiments. STS-79 also work with the Mechanics of Granular Materials experiment, which is designed to help scientists understand the effects of compressing and decompressing granular materials. The Extreme Temperature Translation Furnace studied the influence of microgravity on liquid phase sintering of metals at 1,600 degrees Celsius. The experiment could lead to the development of purer alloys.

NASA-JSC